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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,189	01/30/2002	Shunichi Matsushita	KOBAY17.001AUS	9401

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EXAMINER

HUGHES, DEANDRA M

ART UNIT PAPER NUMBER

3663

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/062,189

Applicant(s)

MATSUSHITA ET AL.

Examiner

Deandra M Hughes

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MW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1-6/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3 and 5-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,3 and 5-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date Jan. 6, 2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed Dec. 17, 2003, with respect to claims 2-3 and 5-12 have been fully considered and are persuasive. The rejection of claims 2-3 and 5-12 has been withdrawn.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 2-3 and 5-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

For example, applicant recites the limitation 'each pair of light sources being respectively input to *each set* of the said polarization beam combiners' (claim 2, line 10; emphasis added). The specification is enabling only for each pair of light sources being input to a *polarization beam combiner* and not a *set* of polarization beam combiners.

Further, applicant claims 'the composite lightwave of each set being respectively input to each set of depolarizers (claim 2, line 13; emphasis added). Again, the composite lightwave is disclosed as being input to a *depolarizer* not a *set* of depolarizers.

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The above referenced issue occurs again in the claim 3, line 11 and claim 5, line 12.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-3, 5-6, 9, and 12, as best as they are understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ye (US 2002/0101634 filed Dec. 15, 2000) in view of Ziari (US 6,522,796 filed Oct. 24, 2000).

With regard to claim 2, Ye discloses:

- a plurality of pairs of pump light sources (fig. 1, 1438+ and 1438- is one pair, etc.);
- a plurality of sets of polarization beam combiners (fig. 1);
- an optical beam coupler for combining a plurality of lightwaves (fig. 1, PUMP MULTIPLEXER),
- the output lightwaves from each pair of light sources being respectively input to "each set" of the said polarization beam combiners to output a composite lightwave of each set with orthogonal state of polarization. the composite lightwave of each set being respectively input to "each set" of the depolarizers to output depolarized lightwaves for each set with lower

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degree of polarization, and the depolarized lightwaves for each set being combined and output by the optical beam coupler.

Ye does not specifically disclose a plurality of sets of depolarizers. However, Ziari teaches depolarizing lightwaves prior to introduction to an amplifier (fig. 2, #220). It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to depolarize the light beam prior to coupling for the advantage of decreasing polarization dependent gain fluctuations which ultimately lead to errors in transmitting information (Ziari, lines 40-50).

With regard to claim 3, Ye does not specifically disclose placing a depolarizer following multiplexing of the pumps. However, Ziari teaches depolarizing pump beams prior to introduction to an amplifier (fig. 2, #220). It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to depolarize the light beam prior to coupling for the advantage of decreasing polarization dependent gain fluctuations which ultimately lead to errors in transmitting information (Ziari, col. 1, lines 40-50).

With regard to claim 5, Ye discloses one individual light source (1466nm) that is different from the pairs of light sources (1438nm, 1452nm, or 1458nm).

With regard to claims 6 and 9, the depolarizer of Ziari is of a birefringent PM fiber wherein the principle axes are oriented at 45 degrees with respect to each other (col. 8, lines 45-51).

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With regard to claim 12, Ziari discloses a transmitter (fig. 1, #102), a receiver (fig. 1, #104), and a Raman amplifier (fig. 1, #120) which is pumped by the depolarized pump source.

6. Claims 7-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ye (US 2002/0101634 filed Dec. 15, 2000) in view of Ziari (US 6,522,796 filed Oct. 24, 2000) as applied to claim 2, 3, or 5 above and further in view of Nishiura (US 5,526,115 published Jun. 11, 1996). Ye in view of Ziari does not specifically disclose that the birefringent material consists of rutile or calcite. Further, Ye in view of Ziari does not specifically disclose that the depolarizer is a Lyot depolarizer. However, Nishiura teaches that rutile, calcite, and Lyot depolarizers are well-known in the art (col. 5, lines 45-51 and col. 7, line 43). It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to use any of the depolarizers taught by Nishiura for the advantage of a lower priced conventional depolarizer (col. 5, line 25; and col. 7, line 43).

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ye (US 2002/0101634 filed Dec. 15, 2000) in view of Ziari (US 6,522,796 filed Oct. 24, 2000) as applied to claim 2, 3, or 5 above and further in view of Cornwell (US 6,356,383 filed Mar. 31, 2000). Ye in view of Ziari does not specifically disclose the use of isolators. However, isolators are well known in the art. Further, Cornwell clearly teaches the use of isolators (col. 7, lines 9-15). It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to use isolators for the advantage of preventing unwanted back reflections of light.

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Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M Hughes whose telephone number is 703-306-4175. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Black can be reached on 703-305-9707. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DMH



NELSON MOSKOWITZ
PRIMARY EXAMINER